

## CLAIMS

We claim:

- 5 1. A compressor and driving motor assembly, in which the motor comprises a rotor and a stator assembly, and the compressor comprises a main body which supports a drive shaft, the rotor being mounted directly on the drive shaft, in which the drive shaft acts as a cantilever supporting the rotor.
2. An assembly according to claim 1 without a bearing acting to support the rotor at a distance from the main body of the compressor.
- 10 3. An assembly according to claim 1, in which the motor is a hybrid permanent magnet motor.
4. An assembly according to claim 1, in which the rotor is shaped so as to have a central longitudinal aperture adapted to fit to a corresponding tapered portion of the drive shaft.
- 15 5. An assembly according to claim 1, in which the compressor has a housing, and the stator assembly is connected to the housing of the compressor.
6. An assembly according to claim 5, in which the stator assembly is directly connected to the housing.
7. An assembly according to claim 5, in which the stator assembly is connected to  
20 the housing by way of an adapter flange.
8. An assembly according to claim 5, in which the compressor is an air compressor.
9. An assembly according to claim 5, in which the compressor is a rotary screw compressor.

10. A rotary screw air compressor and driving motor assembly, the driving motor being a hybrid permanent magnet motor.

11. An assembly according to claim 10, in which the compressor is an air compressor.

5 12. An assembly according to claim 10, in which the compressor is a rotary screw compressor.

13. An assembly according to claim 10, in which the motor is a fixed speed motor.

14. An assembly according to claim 10, in which the motor is a variable speed motor.

10 15. An assembly according to claim 10, in which the compressor is of flooded type.

16. An assembly according to claim 10, in which the compressor is of oil-free type.

15 17. An assembly according to claim 10, in which the motor comprises a rotor which is mounted directly on to a drive shaft of the compressor.